#### Cairo University Faculty of Computers and Information



**CS251**

**Software Engineering I**

Social Network

Software Design

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# Team

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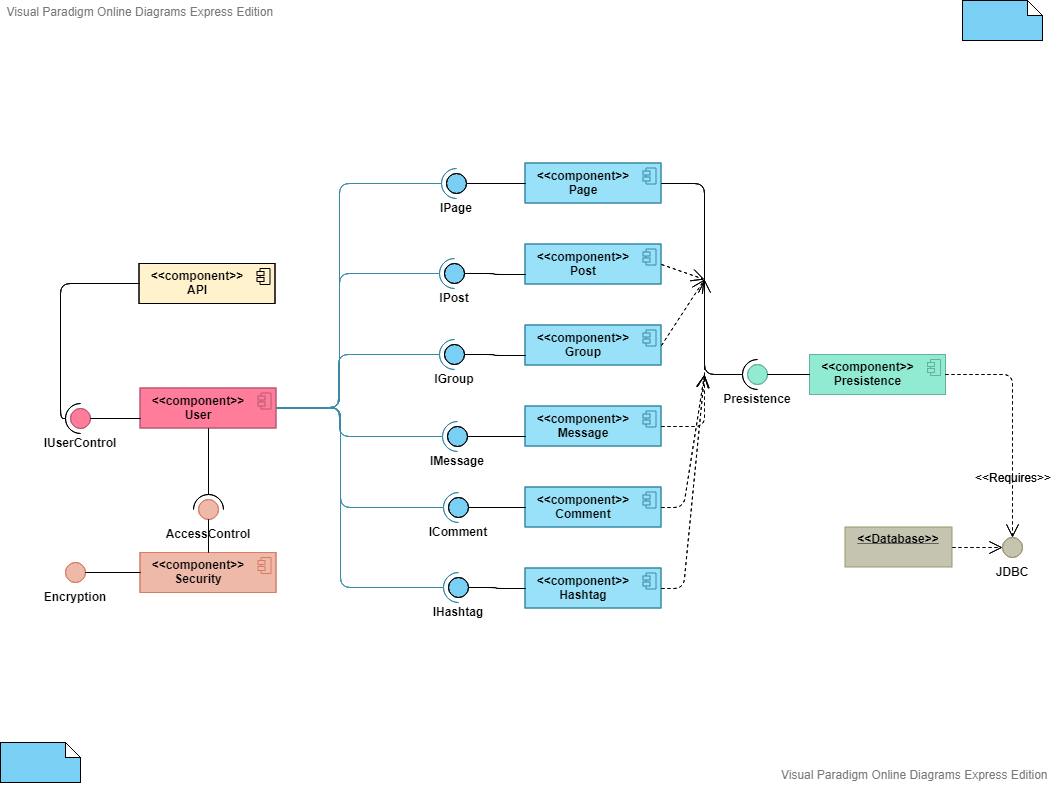
# Document Purpose and Audience

* This document is for illustrating the system design, system composition and sequence diagrams for some use cases.
* Understand some sort of sequences that expected to be in API.
* Illustrates how the classes will communicate.
* Illustrates dependencies between classes.
* Implementing partial functions of the project and preview them.
* Adding some unit test cases to verify the reliability of the functions.
* Expected audience: System Analyst, Project Manager and lead members.

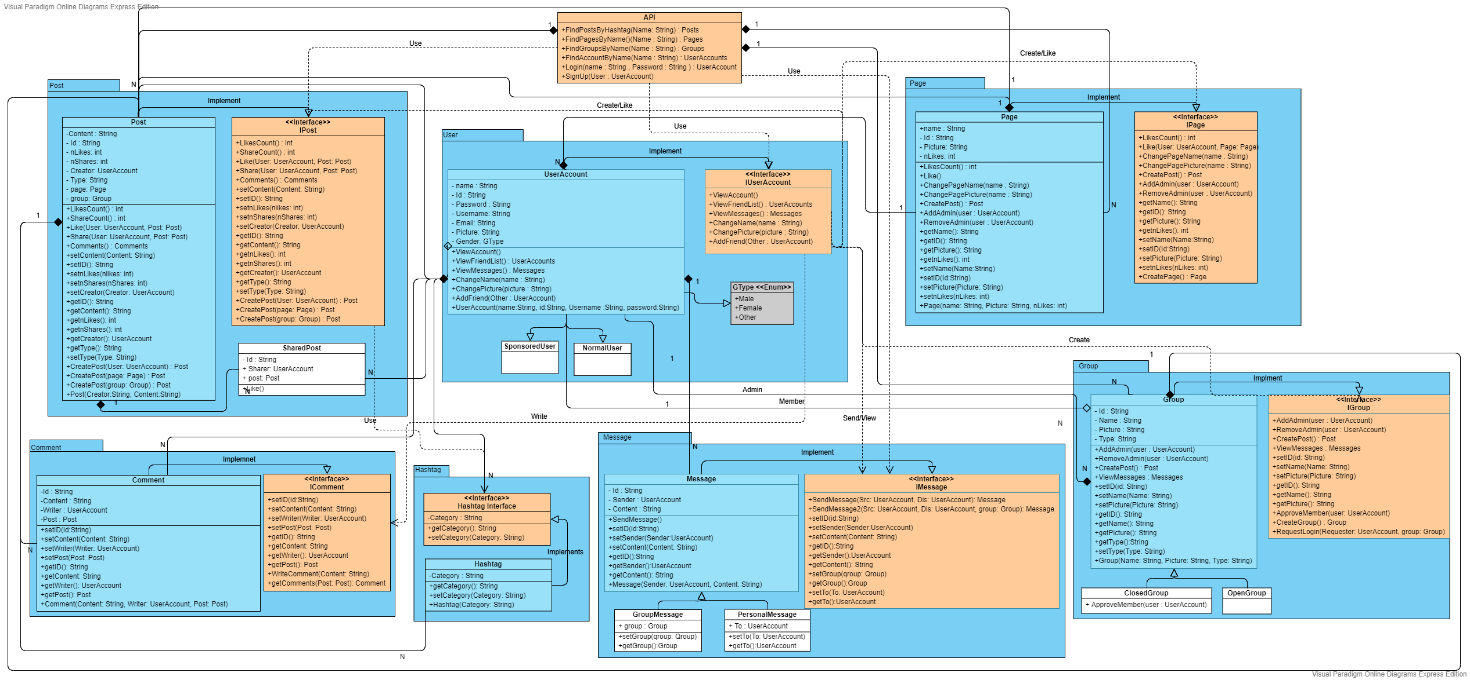
# System Models

## I. System Decomposition

* Component API is the Entry Point (Main) of the application that manages the whole application.
* All components that needs a database communication must use the persistence layer to call it.
* Security component is added for secure connections because of existence of critical data like passwords.

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## II. Class diagrams

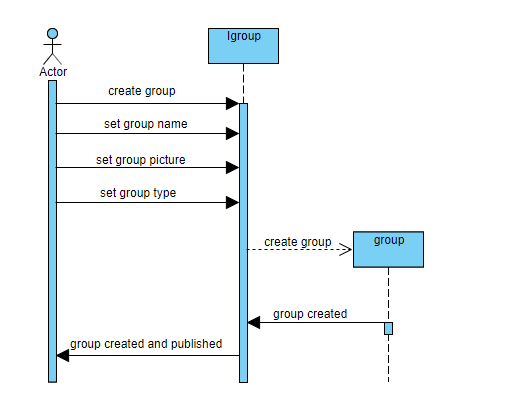


## III. Class Description and Responsibility Table

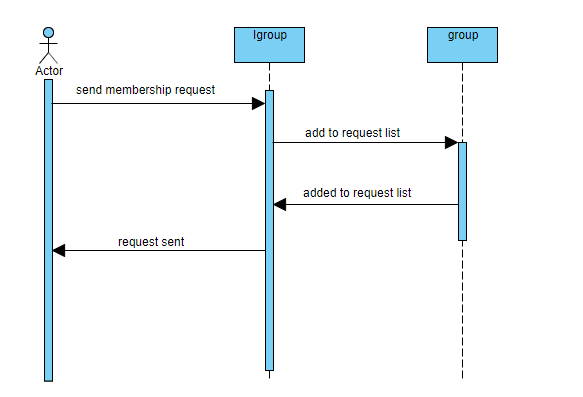
| **Class ID** | **Class Name** | **Subsystem ID** | **Description & Responsibility** |
| --- | --- | --- | --- |
| API-C1 | API | API-P | This class responsible for managing the interface of system as logging in. |
| Post-C1 | IPost | Post-P | Interface for Posting and its functions. |
| Post-C2 | Post | Post-P | Implements all Posting functions as like post. |
| Post-C3 | SharedPost | Post-P | Shared Post that contains information of post and sharer. |
| Comment-C1 | IComment | Comment-P | Interface for Commenting and its functions. |
| Comment-C2 | Comment | Comment-P | Implements all Commenting functions as write comment. |
| Hashtag-H1 | IHashtag | Hashtag-P | Interface for Hashtag and its functions. |
| Hashtag-H2 | Hashtag | Hashtag-P | Implements Hashtag functions as write setters and getters. |
| User-U1 | IUserAccount | User-P | Interface for Account and its functions. |
| User-U2 | UserAccount | User-P | Implements all Account functions as view account and editing it. |
| User-U3 | NormalUser | User-P | Extends from UserAccount that defines a normal user. |
| User-U4 | SponsoredUser | User-P | Extends from UserAccount that defines a sponsored user. |
| User-U5 | GType | User-P | Enum to define the gender type of a user. |
| Message-C1 | IMessage | Message-P | Interface for messaging and its functions. |
| Message-C2 | Message | Message-P | Implements Message functions like send message. |
| Message-C3 | PresonalMessage | Message-P | Extends from Message that define personal message (message sent to one user). |
| Message-C4 | GroupMessage | Message-P | Extends from Message that define group message (message sent to group of users). |
| Page-C1 | IPage | Page-P | Interface for Pages and their functions. |
| Page-C2 | Page | Page-P | Implements Page functions like Add Admin. |
| Group-C1 | IGroup | Group-P | Interface for Groups and their functions. |
| Group-C2 | Group | Group-P | Implements Group functions as Add Admin. |
| Group-C3 | OpenGroup | Group-P | Default group type that has members and posts and any member can join it anytime. |
| Group-C4 | ClosedGroup | Group-P | Differs from open group in where member cannot join it unless an admin accepts it. |

## IV. Sequence diagrams

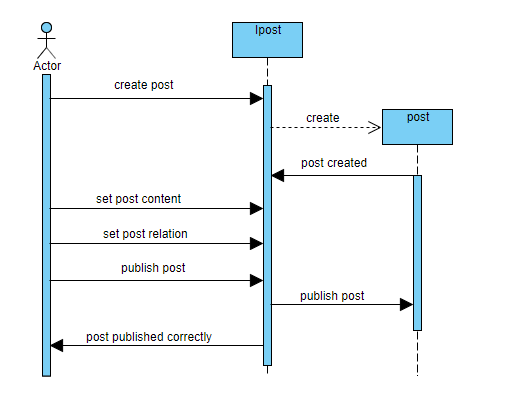
### Group Creation



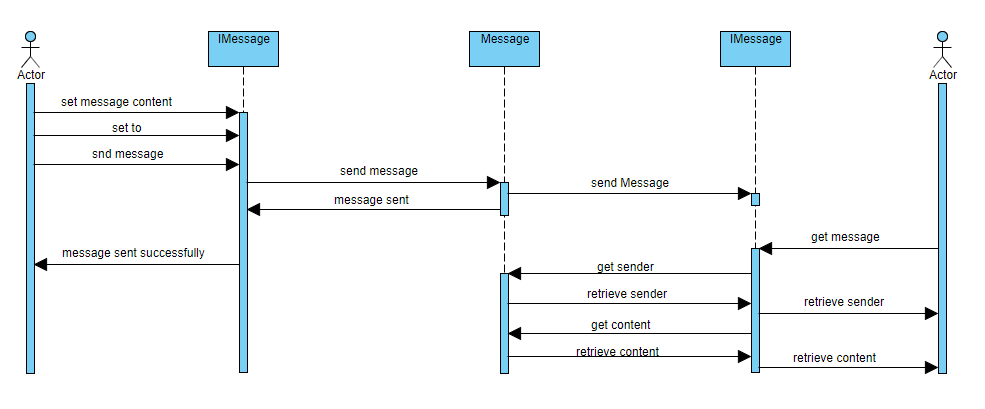
### Join Group



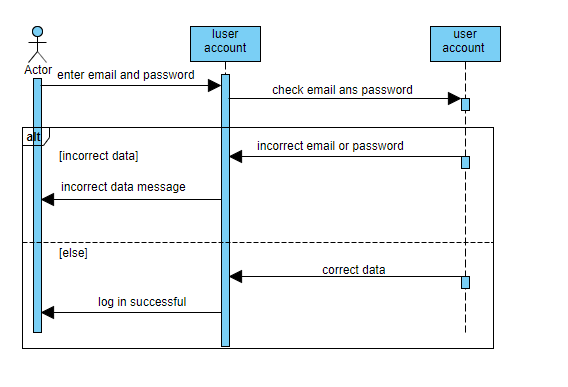
### Post to Profile/Page/Group



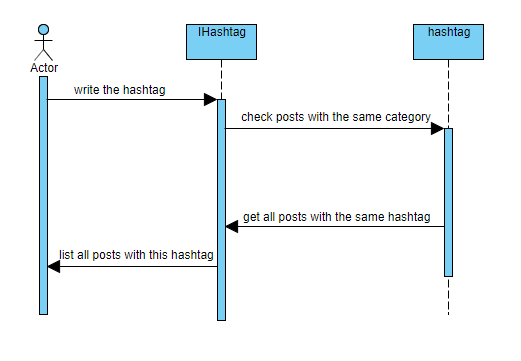
### Send and Receive Messages



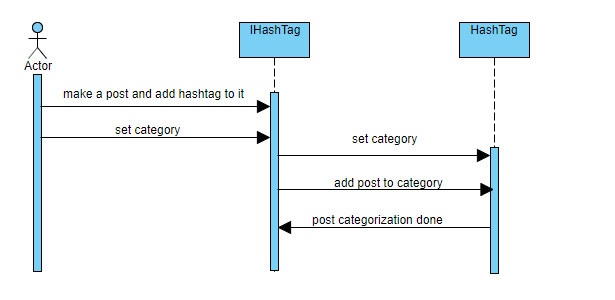
### Login to Account



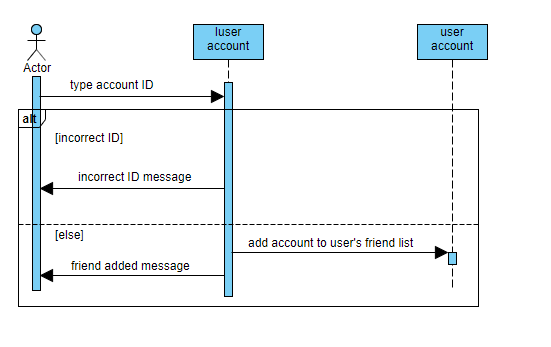
### Get Posts with Hashtag



### Categorize Post



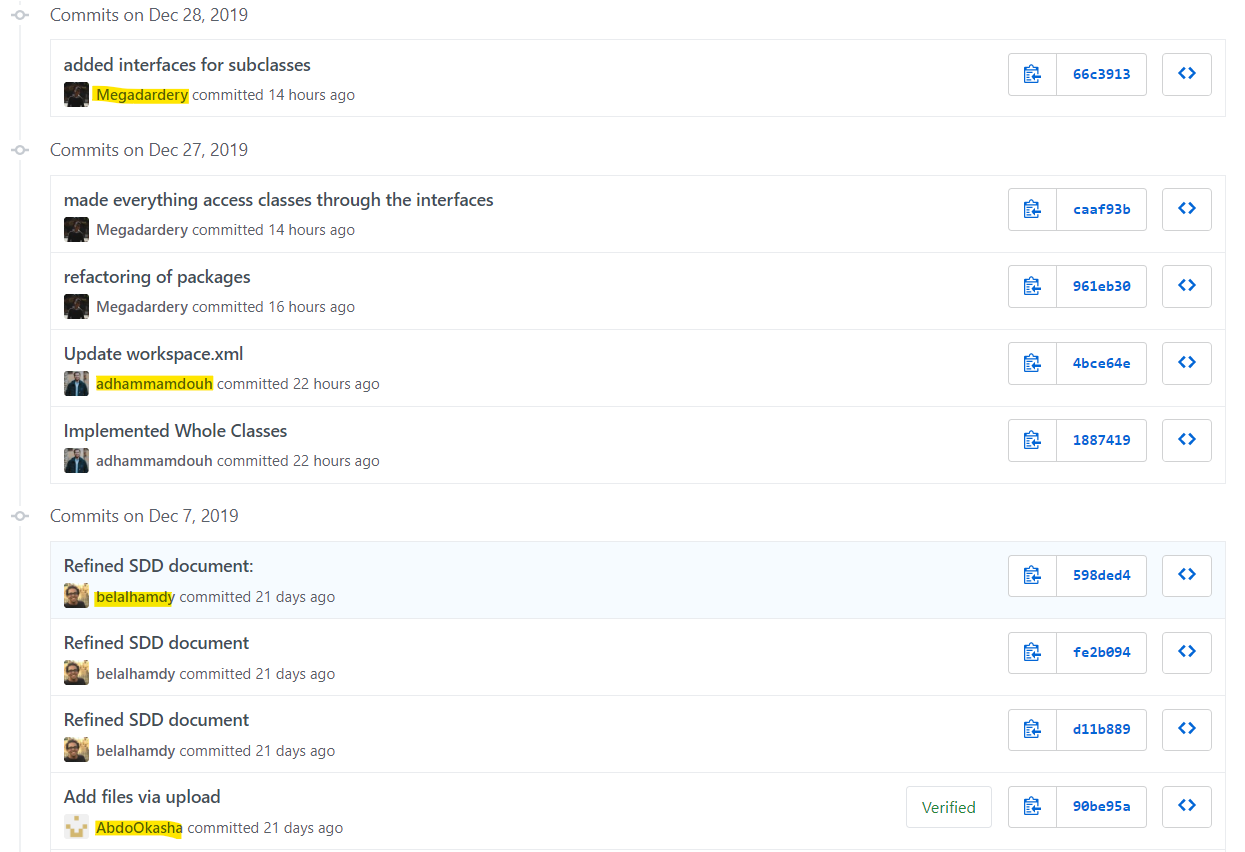
### Send Friend Request



### Class - Sequence Usage Table

| **Class Name** | **Sequence Diagrams** | **Overall used methods** |
| --- | --- | --- |
| User | 1,2 | Create Group, RequestMembership |
| IGroup | 1,2 | CreateGroup, setGroupName, setGroupPicture, setGroupType, RequestMembership |
| Group | 1,2 | CreateGroup, AddToRequestList |
| Post | 3 | CreatePost, setRelation,publishPost |
| IPost | 3 | CreatePost, setRelation,stePostContent, setPostRelation,publishPost |
| IMessage | 4 | setContent,setTo,sendMessage,  getMessage |
| Message | 4 | sendMessage,getSender,getContent |
| IUserAccount | 5 | AddFriend |
| UserAccount | 5 | AddToFriendList |
| API | 6 | CheckEmailAndPassword |
| IHashTag | 7 | checkPostsWithCategory |
| iHashTag | 8 | SetCategory |
| HashTag | 8 | SetCategory,addPostToCategory |

# GITHUB



# Ownership Report

|  |  |
| --- | --- |
| **Item** | **Owners** |
| Purpose and Audience, System Decomposition and Class description and responsibility table | *Belal, Ahmed* |
| Class Diagram | *Adham, Ahmed and Belal* |
| Class – sequence Usage Table | *Adham and Abdelrahman* |
| Sequence Diagrams | *Ahmed and Abdelrahman* |

# Traceability Matrix

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| S | UC ID | UC Description | Classes | Req ID | Req Description | Unit Test |
| 1 | U\_SU | Sign Up | API, UserAccount | R\_USR1 | Sign up | userAccountTest |
| 2 | U\_LN | Login | API, UserAccount | R\_USR3 | Login | userAccountTest |
| 3 | U\_U-POST | Make a Personal Post | UserAccount, Post | R\_USR5 | Post to profile |  |
| 4 | U\_G-POST | Make a Group Post | UserAccount, Group, Post | R\_GRP7 | Group members can make a post in the group |  |
| 5 | U\_P-POST | Make a Page Post | UserAccount, Page, Post | R\_PGE2 | Admin post to page |  |
| 6 | U\_U-FRIEND | Add Friend | UserAccount | R\_USR10 | Add friend |  |
|  | U\_G-CREATE | Create Group | UserAccount, OpenGroup, Closed Group | R\_USR8 | Create Group |  |
| 7 | R\_GRP1 | Set group type (private/public) and name |  |
| 8 | U\_G-MANAGE | Change Group Attributes | UserAccount, Group | R\_GRP6 | Manage Group |  |
| 9 | U\_G-ADMIN | Set Group admin | UserAccount, Group | R\_GRP2 | Promote users to group admins |  |
| 10 | U\_H-ADD | Categorize Post with hashtag | Post, Hashtag | R\_HY1 | Categorize post with hashtag |  |
| 11 | U\_U-PROFILE | Change Profile Data | UserAccount | R\_USR4 | Edit Profile |  |
| 12 | U\_P-CREATE | Create Page | UserAccount, Page | R\_USR7 | Create Page |  |
| 13 | U\_P-MANAGE | Change Page Attributes | UserAccount, Page | R\_PGE3 | Admin manage page |  |
| 14 | U\_P-ADMIN | Set Page admin | UserAccount, Page | R\_PGE1 | Promote users to page admins |  |
| 15 | U\_G-REQUEST | Send Membership Request | UserAccount, Group | R\_GRP4 | Request membership and admin approval |  |
| 16 | U\_G-APPROVE | Approve Membership Request | UserAccount, Group |  |
| 17 | U\_G-INVITE | Invite User to Group | UserAccount, Group | R\_GRP5 | Group Invites |  |
| 18 | U\_G-FIND | Find Group by Name | API, Group | R\_USR9 | Search for users, pages and groups |  |
| 19 | U\_P-FIND | Find Page by Name | API, Page | APITest |
| 20 | U\_U-FIND | Find User by Name | API, UserAccount | APITest |
| 21 | U\_POST-FIND | Find Post by hashtag | API, Post | R\_HY2 | Find post by hashtag | APITest |
| 22 | U\_P-LIKE | Like Page | UserAccount, Page | R\_PGE4 | Like page and see number of likes |  |
| 23 | U\_P-CNTLIKE | Check page likes | UserAccount, Page |  |
| 24 | U\_G-POSTLIKE | Like Group Post | UserAccount, Group, Post | R\_GRP3 | Group members can like, comment on existing post. |  |
| 25 | U\_POSTLIKE | Like Personal Post or Page Post | UserAccount, Post | R\_PST1 | Like and comment on post. |  |
| 26 | U\_POSTCOM | Make a Comment on post | UserAccount, Post, Comment |  |
| 27 | U\_POSTATTR | Check post attributes (no. likes and shares) | UserAccount, Post | R\_PST2 | See number of likes and number of shares on post |  |
| 28 | U\_G-POSTCOM | Make a Comment on group post | UserAccount, Post, Comment, Group | R\_GRP3 | Group members can like, comment on existing post. |  |
| 29 | U\_POSTSHARE | Share Post | UserAccount, Post | R\_PST3 | Share post |  |
| 30 | U\_MSG-SEND | Send Message | UserAccount, Message, [Group] | R\_USR6 | Send/Receive Messages |  |
| 31 | U\_MSG-RECIEVE | Receive Message | UserAccount, Message, [Group] |  |
| 32 | U\_PROMOTE | Promote Normal User | API, NormalUser, Sponsored User | R\_USR2 | Promote Normal User to Sponsored User | userAccountTest |